Attachment 1

Specifications

DTFAEN-11-R-00105

EXTERIOR PAINTING OF BUILDINGS

AT

THE JACKSONVILLE AIR ROUTE TRAFFIC CONTROL CENTER (ARTCC)
(CONTROL WING, AUTOMATION WING, AUXILIARY SUPPORT BUILDING AND POWER SERVICE BUILDING)

HILLIARD, FLORIDA

ZJX Air Route Traffic Control Center
Jacksonville, Florida

Paint Exterior of Buildings
Control Wing, Automation Wing, Auxiliary Service and Power Service Building

SPECIFICATIONS

MARCH 2011
SPEC. # FAA-ZJX-1004384

Prepared by: Federal Aviation Administration
ATO Tech Ops Engineering Services
Atlanta Enroute Unit

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END OF DOCUMENT 002

SECTION 01 00 00 GENERAL REQUIREMENTS

PART 1 – GENERAL

1.1 SCOPE

Scope - These specifications, together with referenced specifications, standards, construction drawings specified on the Contract Documents and the conditions of the Construction Contract cover the requirements of the Federal Aviation Administration (FAA) for the work associated with this project.

1.2 REPAIR AND PROTECTION

A. General: Upon completion of inspection, testing, sample taking and similar services, repair damaged construction and restore substrates and finishes.

B. Protect construction exposed by or for quality control service activities, and protect repaired construction.

C. Contractor is responsible for, but not limited to, all repair and protection of existing equipment, systems and services, associated with or affected by the contract requirements and work area.

1.3 INDUSTRY STANDARDS

A. Applicability of Standards: Unless the Contract Documents include more stringent requirements, applicable construction industry standards have the same force and effect as if bound or copied directly into the Contract Documents to the extent referenced. Such standards are made a part of the Contract Documents by reference.

B. Publication Dates: Comply with the standards in effect as of the date of the Contract Documents.

C. Conflicting Requirements: Where compliance with two or more standards is specified and the standards establish different or conflicting requirements for minimum quantities or quality levels, comply with the most stringent requirement. Refer uncertainties and requirements that are different but apparently equal to the COR for a decision before proceeding.

1. Minimum Quantity or Quality Levels: The quantity or quality level shown or specified shall be the minimum provided or performed. The actual installation may comply exactly with the minimum quantity or quality specified, or it may exceed the minimum within reasonable limits. To comply with these requirements, indicated numeric values are minimum or maximum, as appropriate, for the context of the requirements. Refer uncertainties to the COR for a decision before proceeding.

D. Copies of Standards: Each entity engaged in construction on the Project must be familiar with industry standards applicable to its construction activity. Copies of applicable industry standards are not bound with the Contract Documents.

1. Where copies of standards are needed to perform a required construction activity, the Contractor shall obtain copies directly from the publication source and make them available on request.

E. Abbreviations and Names: Trade association names and titles of general standards are frequently abbreviated. Where abbreviations and acronyms are used in the Specifications or other Contract Documents, they mean the recognized name of the trade association, standards-generating organization, authorities having jurisdiction, or other entity applicable to the context of the text provision. Refer to Gale Research's "Encyclopedia of Associations" or Columbia Books' "National Trade & Professional Associations of the U.S.," which are available in most libraries.

1.4 RECORD DRAWINGS

The Government shall provide the Contractor with an electronic copy of the record drawings in .PDF format. Changes to the original plans, drawings or shop drawings shall be annotated in red.

END OF SECTION 01000

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SECTION 01 01 00 SUMMARY OF WORK

PART 1 - GENERAL

1.1 SUMMARY

A. Scope of Work - These specifications, together with the referenced specifications, standards, and drawings specified in the contract documents cover the requirements for all work associated with the following:

1. The scope of work will include, but will not be limited to the following items:
   a. Prepare surfaces and paint exterior metal surfaces on the Control Wing, Automation Wing, Auxiliary Support Building and Power Service Building.
   b. Prepare all metal surfaces to include metal canopies, metal columns, metal handrails, metal doors and frames, and gutters and downspouts.
   c. Inspect all joints, remove deteriorated calking and apply new caulking in areas where removed and as required to seal and paint perimeter joints around windows, doors and trim, expansion joints, or other areas where water intrusion may result. Tool after application.
   d. All metal surfaces shall be prepared as required for the final coat of paint to bond to the existing building materials for a minimum of 15 years. In the preparation of metal surfaces for application of the final coat, all loose paint shall be removed and all areas of oxidation shall be cleaned, and a primer shall be applied.
   e. Color of paint will match the color of the new "Curtain Wall Project". Color of Auxiliary Support Building shall match existing color.
   f. All paint materials to be used on this project shall be of low or no odor. Submit Material Safety Data Sheets for approval by FAA prior to beginning painting work.

The work is located at the Jacksonville Air Route Traffic Control Center, (ARTCC) located in Hilliard, Florida.

2. The General Contractor (GC) shall be expected to work Monday through Friday during the day time hours of 0700 AM to 0430 PM. Extensive coordination between the GC and FAA personnel shall be required at all times in order to maintain an operational facility. However, items of work which may impact the operation of the control room or the related National Air Space (NAS) equipment must be accomplished during off-peak hours (midnight to 5:00 AM). This includes, but is not limited to the following:
   a. Noisy work in the vicinity of the Control Room
   b. Work which will emit or result in undesirable dust/odors in the vicinity of the Control Room
   c. Work above and/or near NAS equipment
   d. Work in electrical panels

Prospective bidders are strongly recommended to perform a site visit to assess the actual conditions before submitting a bid. Site visits should be arranged through the Contracting Officer's Office.

B. FAA Holiday Moratorium - No work shall be scheduled or take place during the week of and the weekend preceding and following: The Thanksgiving, Christmas, New Years Holidays. Only emergency work to restore critical services to the Facility will be considered and a moratorium waiver must be submitted and approved. The moratorium period will not be counted against the contract construction duration of the project.

C. Intent of Specifications - This specification identifies all material, labor, and equipment required to perform this work. All work performed and all materials and equipment used are subject to approval

by the Contracting Officer (CO) and /or the Resident Engineer (RE). This shall include but is not limited to inspection, scheduling, reporting and submittals.

D. Title - Titles to division and sections of the specifications and notes and titles on drawings referring to subcontractors, division of work by trade, or type of work, are introduced merely for convenience in reading the specifications and drawings and do not imply any separate contractual arrangements of work assignments. Such separations into titled divisions and sections shall not operate to make the Government an arbiter to establish subcontract limits between the contractor and subcontractors, or between the subcontractors themselves.

E. Contract Documents - The drawings, as shown on the "List of Drawings" in Attachment 2 in each specification package, General, Architectural, Mechanical, Electrical, and Southern Standards, all form a part of the construction requirements for this project. The renovation of these systems shall be in accordance with the lines and grades shown on the drawings. The Contractor shall not use dimensions scaled from drawings. All dimensions shown on the drawings shall be field verified by the contractor prior to any modifications and fabrications. Any discrepancies between the drawings and specifications and the existing conditions shall be referred to the CO for adjustment before any work affected is performed.

F. Precedence of Contract Documents - In the event of a difference between the following contract provisions, the order of precedence to determine which provision shall govern is:

1. Contract Clauses and Provisions
2. Project Specifications
3. Project Drawings

Any discrepancies between the contract provisions, the specifications and the contract drawings shall be referred to the CO for a written determination in accordance with Contract Clause entitled Order of Precedence.

G. Contracting Officer -The term "Contracting Officer" (CO) as used herein denotes the person designated to act on behalf of the Government in the performance of this contract. Where reference is made to "Federal Aviation Administration" (FAA), "Resident Engineer" (RE), "Contracting Officer's Representative" (COR), or the like, this shall mean the Contracting Officer or his/her authorized representative.

H. Contractor Superintendence - In accordance with Contract Clause entitled SUPERINTENDENCE BY THE CONTRACTOR, the Contractor shall at all times during performance of this contract and until the work is completed and accepted, directly superintend the work or assign and have on site a competent superintendent with the authority to act for the Contractor.

The Contractor shall submit a Project Organizational Chart with the key personnel identified and their qualifications for the Government's review and approval.

1.2 SPECIAL REQUIREMENTS

A. Asbestos Containing Materials. - **No new materials supplied by the contractor for this construction shall contain asbestos or lead-based products.** The contractor shall verify that all materials, including those supplied by third parties, are asbestos free and/or lead-based free materials.

1. Contractor certification requirements. - The contractor shall provide to the Contracting Officer (CO) a signed and notarized document stating that to the best of his/her knowledge,

no asbestos containing or lead-based materials were used during the construction, renovation, and/or modernization of this facility.

2. Material Safety Data Sheets. - The contractor shall submit Material Safety Data Sheets (MSDS) with all submittals for review and approval by the Contracting Officer. New materials found to contain asbestos and/or lead-based products will be automatically disapproved. Copies of all MSDS sheets shall be provided to the facility FAA personnel for the building records. The contractor shall comply with all health and safety provisions outlined in each MSDS and shall follow all OSHA guidelines regarding personnel protection.

3. Hazardous materials.- If the FAA RE suspects the presence of asbestos or lead-based products in the new materials, the FAA will sample the suspect material to verify that no asbestos containing material or lead-based material were used. If these materials are found to contain asbestos or lead-based products, the cost of the survey and all subsequent removal/replacement of any hazardous materials shall be at the contractors' expense.

B. Work plan and scheduling. – Prior to the Contracting Officer issuing the Notice To Proceed (NTP), the contractor shall submit for approval a plan and schedule of his work. This schedule shall include all of the requirements as defined in Section 01042 of this specification.

C. Sequence of work. - The contractor shall be responsible for scheduling all aspects of the work and coordinating among the different trades involved in the project. The contractor shall follow the guidelines outlined in the sequence of work as described in the contract drawings. The Federal Aviation Administration has developed a list of milestones that the contractor shall be required to meet.

D. Construction Activities and Milestones. – Construction Activities and Milestones below shall be included in the submitted schedule. They are provided for guidance, but are not intended to direct how and when contract activities shall be ordered or take place in the submitted schedule.

1. SUBMITTAL APPROVAL
2. ORDER LONG LEAD ITEMS
3. NOTICE TO PROCEED
   a. Scheduled by the FAA's CO
4. ESTABLISH PROTECTION OF PERSONNEL AND EQUIPMENT
5. SUBMIT SCHEDULE
6. SUBMIT SAFETY PLAN
7. COMMENCE SURFACE PREP WORK ON ALL BUILDINGS
8. PAINT EXTERIOR SURFACES ON ALL THREE BUILDINGS
9. INSPECTION AND ACCEPTANCE BY FAA
10. CLOSE JOB

E. Driveway Closures - Contractor shall maintain access to the loading dock at all times.

END OF SECTION 01010

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SECTION 01 03 00 SITE ACCESS, CONSTRUCTION LIMITS, USE OF FACILITIES AND WORK HOURS

PART 1 – GENERAL

1.1 SUMMARY

A. Existing facility operations. - Construction/demolition shall in no way interfere with Air Traffic Control Operations. The ARTCC is a 24 hour, seven day a week facility. Extreme care shall be exercised so as not to cause any interference or interruption of service from this facility. Controller functions are vital to the safety of the flying public. It is absolutely mandatory that the contractor protects FAA personnel and existing FAA communication, electrical and mechanical equipment both inside and outside buildings from damage caused by impact, water, debris, dust or odor. The contractor shall have the overall responsibility for the performance and enforcement of all forms of protection within the ARTCC premises against any damages due to work performed under this contract. Any damages incurred, as a result of construction activity during the performance of this contract will be repaired/replaced immediately by the contractor at no cost to the FAA.

Any work or activity that may impact the National Airspace System (NAS), such as work on critical equipment or circuits, will require coordination with the Contractor Office Representative (COR). The COR will prepare and submit a work or activity specific "Risk Assessment" for the facility's review and approval. This process may take one week to complete. Typically, this type of work or activity is performed from midnight to 05:00 am and/or on weekends.

B. Construction limits and access. -

1. Construction limits.- The contractor shall confine operations, activities, storage of materials and employee parking within the designated areas, as indicated on the construction staging plan, or as designated by the COR. Additional space the contractor deems necessary shall be obtained off site, at no additional cost to the Government.

2. Access. - Access route for the contractor, subcontractors, employees, deliveries, etc., shall be on route as designated by the COR. Access to all, parking areas, and loading dock shall be kept unobstructed. If temporary access obstruction is unavoidable, the contractor shall advise the COR immediately. Vehicles transporting materials shall not be loaded beyond the capacity prescribed by federal, state, or local laws. Obstruction of existing roadways, driveways, to the ARTCC is strictly prohibited.

3. Damage to site. - Damage to existing paving, lawns, curbs, sidewalks, and utilities caused by the contractor's activities shall be repaired immediately. Any damage to the building, interior or exterior, that are a result of the contractor's activities shall be repaired. All costs of repairs shall be paid by the contractor. After notice to proceed and prior to the commencement of construction, the contractor and COR shall conduct joint inspections of the existing areas affected by the construction. Existing damage or defects shall be noted and will be used as the basis for determination of damages caused by the contractor's operations.

4. The Contractors' employees shall not use the Cafeteria and restrooms.

C. Inspection of site by contractor. - It is strongly urged that the contractor carefully examine the premises to determine the extent of work and the conditions under which it must be done.

D. Government use and access to premises. - The Government reserves the right to enter the construction area at any time for work inspection and for the operation of the facility.

E. Work hours. - All work hours, shifts, and overtime work shall be coordinated with the COR. Before commencing construction, furnish to the COR a statement of hours per day and days per week to normally be worked and approximate number of persons on the job for a normal work shift.

F. Security requirements.

1. Personnel List. - Contractor shall provide the COR with a list of contractor personnel who require access to the ARTCC. The list shall be submitted immediately after contract award. The list shall be kept current during the project and shall include the following:

   Full name, including middle initial
   Federal or State issued photo ID
   Date of Birth
   Place of Birth

2. Security Investigation and identification. - Contractor's personnel may be subject to security investigation by FAA. The contractor shall promptly complete all security forms provided by the CO. Contractor's personnel shall report to the FAA security guard at entrance to the facility and submit proper identification when signing in to obtain an FAA badge which will be worn on an outside garment, above the waist and below the neck, facing forwards, at all times while on the ARTCC premises. This badge shall be returned daily to the security guard when leaving the premises, unless otherwise noted.

3. Vehicle identification. - Vehicle identification tags will be issued for contractor's and contractor's employees' vehicles that require access into the ARTCC site. The identification tags shall be displayed in the windshield of the vehicle at all times when the vehicle is on the site. The contractor shall be responsible for the collection and return of all vehicle tags which are no longer required.

4. Escort requirement. - Contractor is responsible to provide an escort for his employees. This will required a security background investigation by the FAA. Contractor's personnel shall not violate any security regulations pertaining to the ARTCC facility. Violators may be removed from the premises with the right to reenter revocable. Contractor's day-to-day work schedules in the classified areas shall be so arranged to allow for minimum escort.

5. Right to search. - Current procedures at FAA facilities include the "right to search." If in the judgment of the FAA a cause to search a vehicle or the person of personnel exists, such search will be made.

6. Replacement of lost identification. - The FAA will provide personnel badges and vehicle identification tags as described above. It is the contractor's responsibility to return these badges and tags daily and upon completion of the project. The contractor shall be liable to pay for any FAA badge or tag not returned or replaced at the completion of the work. The payment for lost I.D. will be $10.00 for each and every tag or badge not returned or replaced, excluding temporary badges.

7. Physical Security. - At the end of each work day, the contractor shall secure all construction areas by closing and locking all doors and gates. The contractor is responsible for the security of the staging area, and shall provide the required measures at no additional expense to the government.

END OF SECTION 01030

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SECTION 01 04 00 COORDINATION, LOCAL PERMITS AND TESTING

PART 1 – GENERAL

1.1 SUMMARY

A. Project coordination. - It shall be the duty of the Contractor to prepare a detailed schedule of work and work layout to resolve conflicts and to assure coordination of the work by different trades.

B. Weekly Meeting. - Coordination between the COR and Contractor shall take place weekly at the site. Special meetings will be scheduled if requested by either the COR or Contractor. The subjects to be discussed at the progress meetings shall include, but are not limited to, the following:

-Safety concerns/Issues
-Progress of Work
-Previous meeting action items/issues
-Field problems
-Material and Equipment delivery status
-Submittal status/schedules
-Progress planned during the upcoming week(s)
-Review of changes, and potential effects on the schedule
-Construction schedule revisions
-Schedule Revisions
-Other current business

The following persons will be expected to attend meetings; FAA COR, Prime Contractor Superintendent, Project Manager and Project Manager/Superintendents for other major trades.

C. Facility Coordination Meeting. - Weekly coordination meeting shall take place between the facility managers, COR and the Contractor's Project Superintendent.

D. Work Affecting Operational Systems. - The contractor shall coordinate all work which has any or may have any impact on any operational system within the facility through the COR. The contractor shall immediately cease any work which is adversely impacting the operation of the ARTCC and shall immediately repair or restore any portion of the operational system that has been damaged or suffered diminished performance as a result of the contractor's activities.

E. Local permits and Coordination. - The Contractor will be responsible for obtaining and payment of all building fees, inspection fees, utility connection charges and any other fees or charges which may be incurred in the performance of this contract.

F. Applicable documents. - The contractor shall comply with all local city, county, and state construction codes.

1.2 TESTING

A. Contractor's responsibility.- Unless otherwise indicated as the responsibility of another identified entity, Contractor shall provide certified testing and inspection agencies, inspections, tests, and other quality-control services specified elsewhere in the Contract Documents and required by authorities having jurisdiction.

1. Where individual Sections specifically indicate that certain inspections, tests, and other quality-control services are the Contractor's responsibility, the Contractor shall employ and pay a qualified independent testing agency to perform quality-control services.

2. Where individual Sections specifically indicate that certain inspections, tests, and other quality-control services are the Government's responsibility, the Government will employ and pay a qualified independent testing agency to perform those services.

    a. Where the Government has engaged a testing agency for testing and inspecting part of the Work, and the Contractor is also required to engage an entity for the same or related element, the Contractor shall not employ the entity engaged by the Government, unless agreed to in writing by the Government.

B. Retesting - The Contractor is responsible for retesting where results of inspections, tests, or other quality-control services prove unsatisfactory and indicate noncompliance with Contract Document requirements, regardless of whether the original test was Contractor's responsibility.

    1. The cost of retesting construction, revised or replaced by the Contractor, is the Contractor's responsibility where required tests performed on original construction indicated noncompliance with Contract Document requirements.

C. Selection and payment. - The contractor shall pay for all testing. The contractor shall select and use a certified and qualified testing laboratory to perform the requirements of this contract. The testing laboratory shall be certified by the American Association of Laboratory Accreditation.

D. Rejected materials or workmanship.- All materials or workmanship or both which have been rejected by the COR by reasons of failure to conform to the requirements of the Contract Documents shall be removed and replaced with new, acceptable materials by the contractor at the contractor's own expense. Contractor shall also pay for testing of new materials which have been installed in place of rejected materials.

    1. The testing laboratory will furnish three copies of each report directly to the COR covering all of its determinations and conclusions. Reports will show all data customarily listed by the laboratory in reporting on quantities, qualities, and types of materials, together with their correlation with the project and applicable Specification Section.

END OF SECTION 01040

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SECTION 01 04 20 CONSTRUCTION SCHEDULES

PART 1 – GENERAL

1.1 SUMMARY

A. Description. - The work plan and schedule prepared by the contractor shall consist of a Gantt and Pert chart(s) and logical narrative plan. The charts shall show all significant activities and shall include detailed activities when critical work is to be performed.

1.2 PRODUCTS

A. Diagrams -

1. Show the order of the activities.
2. Include construction activities, the submittal and approval of materials, samples and shop drawings, the procurement of critical materials and equipment, fabrication of special materials and equipment along with their installation and testing, and costs associated with each activity in the bar chart.

B. Progress Schedules. - Within 30 calendar days of contract award, the contractor shall submit the schedule and work plan. **A Notice to Proceed will not be issued until the schedule is approved.**

1.3 EXECUTION

A. Review and Evaluation. - The Contractor shall participate in a review and evaluation of the proposed schedule with the Contracting Officer. Any revisions necessary as a result of the review shall be re-submitted for approval of the Contracting Officer within 14 days after the conference. The approved schedule shall then be used by the contractor for planning, organizing, and directing work, reporting progress, and requesting payment for work accomplished. If the contractor, thereafter, desires to make changes in the schedule, the Contracting Officer shall be notified in writing, stating the reasons for the change. If the Contracting Officer considers the change to be of a major nature, the contractor may be required to revise the schedule and submit it for approval, without additional cost to the government.

B. Monthly Update. - The contractor shall meet with the COR at monthly intervals to discuss the construction progress. If the project is behind schedule and requires a change in the schedule, the contractor shall submit a revised schedule with a description of the delaying factors and their impact, and an explanation of corrective actions taken or proposed.

C. Payment. - The monthly update shall show the activities or portions of activities completed during the reporting period, and their total value will be the basis for the contractor's periodic request for payment. Payment will be based on the total value of such activities completed or partially completed after verification by the Contracting Officer.

D. Submission Requirements. - Schedule charts shall be on (minimum) 11" x 17" size paper. Update charts shall show the date of the latest revision. Schedule charts with revisions and monthly updates shall be submitted in three copies.

E. Requirements for Schedule Chart. -

1. Activities.- The significant activities to be included in the schedule chart shall include, but not be limited to:
   a) The milestones listed in 01010 1.2. D.
   b) Any system shutdowns or cut-overs
   c) Any other significant activities the contractor or FAA feels necessary.

2. Format - Contractor should use Microsoft Project, cost loaded. A minimum of 30 activities should be included.

F. Shutdown and Cut Over.

1. Mechanical Systems. - All shutdowns when permitted and/or cut-overs of air handling units shall be coordinated with COR. Only one air handling unit shall be off and unavailable at any given time. Equipment shutdown and lock-out shall be accomplished by FAA personnel.

2. Electrical Systems. - New construction shall have no impact on the critical or essential electrical service at this facility. However, all electrical connections within live power panels will be scheduled with the COR at least 14 days in advance. All electrical connections to existing panels shall be coordinated with FAA personnel. Equipment shutdown and lock-out shall be accomplished by FAA personnel.

3. Startup - Initial startup testing and training will be completed by the contractor.

G. Acceptance and Warranties.

1. The Contractor shall warranty material and equipment furnished by the various manufacturers in writing for a period of two (2) years (or not less than the industry standard for the material specified, nor the manufacturer's standard warranty period, whichever is greater) on building systems finishes or equipment from the date of final project acceptance by the FAA. Mechanical equipment shall be warranted in writing for a period of three (3) years (or not less than the manufacturer's standard warranty period whichever is greater), from date of final project acceptance by the FAA. The cost of any extended warranties will be included in the contract sum.

H. New utility work. - Interface all existing utility work with new work as indicated in the plans and specifications.

END OF SECTION 01042

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SECTION 01 30 00 SUBMITTALS

PART 1 – GENERAL

Applicable provisions of this Section and other provisions and requirements of the Contract Documents apply to all sections, except as modified in Sections of Divisions 2 through 16.

1.1 SUMMARY

Submit Shop Drawings, product data, samples, warranties, certificates, test reports and third party disposal letters as required by the contract documents.

1.2 RELATED REQUIREMENTS

A. Section 01040: Coordination and Testing

B. Section 01651: Materials and Equipment

C. Section 01800: Closeout Procedures

1.3 SUBMITTALS

Submittals required include, but are not necessarily limited to, the following:

A. Submittal schedule

B. Construction progress schedule

C. Submittal log

1.4 SUBMISSION REQUIREMENTS

A. Number of Copies - Submit in ample time for approval before installation. Unless otherwise noted, submit five (5) copies of documents to the Resident Engineer (RE). Three (3) copies will be retained by the RE. If additional copies are required, provide the quantity and submit additional copies to meet this requirement.

B. Time for Approval - Receive submittal approvals prior to starting the work. Time necessary for government approval or disapproval of samples, certificates, test reports, and shop drawings will not be more than thirty (30) calendar days after receipt of a submittal. All materials installed in the work shall match the approved submittals. After a submittal has been approved, no substitutions will be permitted without written approval by the RE. No extension of Contract Time will be authorized because of failure to transmit to the RE sufficiently in advance of the Work to permit processing.

C. Submittal Approval - The checking, marking or approval of the submittal by the FAA shall not be construed as a complete check, but will indicate only that the product or method of construction and detailing is satisfactory. Approval will not relieve the contractor of the responsibility for compliance with the specifications or for any error which may exist. The Contractor shall be responsible for the dimensions and design of

adequate connections, details, and satisfactory construction of all work. Possible approval actions taken by the FAA include:

1. Approved as submitted - If "approved as submitted" is marked by the RE, each copy of the submittal will be identified as having received such approval by being stamped and dated. After submittal has been approved, no substitutions will be permitted without written approval by the RE.
2. Approved as noted - If "approved as noted" is marked by the RE, the submittal is satisfactory contingent upon Contractor acceptance of corrections, notations, or both, and if accepted, does not require resubmittal.
3. Not approved - If "not approved" is marked by the RE, the submittal data does not meet job requirements and the Contractor must resubmit. If the submittal is disapproved, the Contractor shall resubmit the corrected material in the same quantity as specified for the original submittal. Correct disapproved submittals and resubmit for approval by the RE. Approval of resubmittals require an additional fourteen (14) calendar days.
4. Submittal Schedule - Identify within the Contractor's Construction Schedule a schedule of submittals for shop drawings, material approval, etc., showing the dates when submittals will be submitted for the project.
   a) Contents - On the schedule indicate the following information:
      1) Schedule date for submittal
      2) Related Section number.
      3) Submittal category (Shop Drawings, Product Data, or Samples).
      4) Name of the subcontractor (if applicable)
      5) Description of the part of the Work covered.
5. Distribution - Following response to the initial submittal, print and distribute copies to the RE, Government, subcontractors, and other parties required to comply with submittal dates indicated. When revisions are made, distribute to the same parties. Delete parties from distribution when they have completed their assigned portion of the Work and are no longer involved in construction activities.
6. Schedule Updates - Revise the schedule after each meeting or activity where revisions have been recognized or made.

D. Construction Progress Schedule – The progress chart to be prepared by the Contractor pursuant to the Contract Clause entitled "SCHEDULES FOR CONSTRUCTION CONTRACTS" shall consist of network analysis system, or pertchart (barchart). The contractor shall be required to complete the work within the contract time limits after receipt of Notice to Proceed excluding the FAA holiday moratorium as specified in section 01010.

1. Contractor should use Microsoft Project, cost loaded. A minimum of 30 activities should be included.

2. The diagram shall show a continuous activity flow from left to right. The diagram shall show the sequence in which the work is to be accomplished as planned by the Contractor.

3. Dates shall be shown on the diagram for start of the project, any milestones required by the contract, and contract completion.

4. The critical path shall be clearly identified.

5. Network activities shown shall include submittal and review of shop drawings and samples and procurement of materials and construction activities.

6. Government activities that affect progress shall be shown. These include but are not limited to: Notice-to-Proceed, approvals, and inspections.

NO PHYSICAL CONSTRUCTION WORK AT THE SITE MAY TAKE PLACE UNTIL THE CONTRACTOR SUBMITS AND THE GOVERNMENT APPROVES THE SCHEDULE. Government review of schedule submittal(s) will not exceed thirty (30) calendar days. Resubmittal, if necessary shall not exceed fourteen (14) calendar days.

E. Two-week "Look Ahead" schedule - This schedule may be of the contractor's choosing, either bar chart or CPM form. Only activities scheduled to be occurring during the forecasted two week time periods are to be shown. Schedules shall be submitted weekly. Early and Late Start and Finish dates, and subcontractors involved are data to be included in the schedule.

F. Submittals - Submit shop drawings, material and equipment lists, and all other data required under various headings of these specifications necessary to permit commencement of work. RE will return the submittals within 30 calendar days after receipt, indicating approval or disapproval.

G. Submittal Preparation - Place a permanent label or title block on each submittal for identification. Indicate the name of the entity that prepared each submittal on the label or title block.

1. Transmittals - All submittals shall be accompanied by transmittal letters identifying the contents of the submittal. It shall be clearly indicated on the transmittal letter with a statement and signature of the Contractor that the submittal item was verified for compliance with the contract requirements and approved by the Contractor. Transmittal letters shall consist of one original.
2. Contents - Submittals shall be complete and detailed and assembled into sets. Lack of completeness or clarity or inadequate description will be justification for disapproval. Submittals shall bear the following information:

a) Name of project or facility and contract number;
b) Date of submission;
c) Contract drawing number and latest revision;
d) Specification page and paragraph number;
e) Name of contractor and subcontractor or supplier/manufacturer;
f) Clearly identified contents and location of work;

g) Any proposed variances to specification requirements;
h) Contractor's approval certifying he checked and coordinated the work of other trades.

1.5 SHOP DRAWINGS

A. Applicable Documents -

B. Presentation - Present drawings in a clear and thorough manner. Identify details by reference to sheet and detail, building wing and section shown on contract drawings.

1. Submit newly prepared information drawn accurately to scale. Highlight, encircle, or otherwise indicate deviations from the Contract Documents. Do not reproduce Contract Documents or copy standard information as the basis of Shop Drawings. Standard information prepared without specific reference to the Project is not a Shop Drawing.
2. Shop Drawings include fabrication and installation Drawings, setting diagrams, schedules, patterns, templates and similar Drawings.

C. Contents - Provide the following information on each submittal:

1. Submittal number (paragraph 2.1 of this Section) and identify as "Part A" or "Part B" item
2. Date of submission
3. Name of project and facility (full name)
4. Name of Contractor or Subcontractor
5. Reference to drawing number (with revision, if applicable) and/or specification section.
6. Clearly identify contents and location of work.
7. Contractor's approval certifying he checked and coordinated the work of other trades.
8. Dimensions.
9. Identification of products and materials included by sheet and detail number.
10. Compliance with specified standards.
11. Notation of coordination requirements.
12. Notation of dimensions established by field measurement.
13. Sheet Size: Except for templates, patterns and similar full-size Drawings, submit Shop Drawings on sheets at least 8-1/2 by 11 inches but no larger than 36 by 48 inches.

D. Submittal - Submit blue- or black-line prints for the RE's review. Submit five copies, of which three will be retained by the RE.

1. One of the prints returned shall be marked up and maintained as a "Record Document."
2. Do not use Shop Drawings without an appropriate final stamp indicating action taken.

1.6 PRODUCT DATA

A. Collect Product Data into a single submittal for each element of construction or system. Product Data includes printed information, such as manufacturer's installation instructions, catalog cuts, Material Safety Data Sheets (MSDS), standard color charts, roughing-in diagrams and templates, standard wiring diagrams, and performance curves, for all materials brought on site.

B. Preparation

1. Clearly mark or highlight each copy to identify pertinent site specific products or models the Contractor intends to use
2. Highlight/clearly indicate all performance characteristics and capacities
3. Highlight/clearly indicate all dimensions and clearances required

Note: If the submittal is not clearly marked, regarding the above pertinent data, the submittal will be returned marked "DISAPPROVED".

1.7 WARRANTIES/GUARANTIES

A. Assemble two (2) copies with original signatures of warranties executed by each of the respective manufacturers, suppliers, and subcontractors into a warranty book and prepare a Table of Contents.

B. Additional Data - Provide complete information for each item, include the following:

1. Product or work team
2. Firm, with name of principal, address, and telephone
3. Scope
4. Effective dates of warranty based on Final Acceptance of the item.
5. Information for owner's personnel on proper procedures to evoke the warranty in case of failure and instances which might affect the validity of warranty

C. Warranties - Effective after project completion and acceptance by the FAA.

1.8 CERTIFICATES

Assemble certificates executed by each of the respective manufacturers, suppliers, and subcontractors.

A. Additional Data - Provide complete information for each item to certify compliance with contract documents.

1. Product or work item
2. Firm, with name of principal
3. Scope of compliance
4. Signature by an officer of the manufacturer or other individual authorized to sign documents on behalf of the company.

PART 2 – MATERIAL

NOT USED

PART 3 – EXECUTION

3.1 GENERAL

Submittals are required for, but not limited to, the items listed in the specifications or on the drawings. The following is a partial list of submittals required: Schedules, Manufacturer's Literature, Shop Drawings, Samples, Test Reports, Warranties, Certificates, Design Calculations, MSDS, and Installation Instructions. This list should not be construed as a complete list of all submittals required. Submittal dates shall comply with this specification unless a more stringent date is specified. Substitutions and all requested changes will require a submittal.

3.2 SCHEDULE FOR CRITICAL SUBMITTALS

Process after the construction contract has been awarded and prior to NTP:

A. All Critical Submittals are due 30 calendar days after the contract has been awarded. See below for a list of critical submittals. The construction Notice to Proceed (NTP) will not be issued until all critical submittals are approved. All other submittals shall be submitted and approved prior to installation or construction. Critical submittals include the following:

1. Section 01300 - Construction Schedule
2. Section 01730 - Safety Plan

B. No later than two weeks after the contract has been awarded, the Contractor shall be available to participate in a meeting/telecom with the Contracting Officer, Resident Engineer and Office Project Engineer to discuss and coordinate the following:

1. Contractor's FAA point of contact for submitting the Critical Submittals.
2. Discuss the submittal process and forms.
3. Discuss process and forms for request of FAA security badges.
4. Discuss the proposed date for Notice to Proceed (NTP)

*** * * END OF SECTION * * ***

SECTION 01 65 10 MATERIALS AND EQUIPMENT

PART 1 - GENERAL

1-1 SUMMARY

A. General. - Material and equipment incorporated into the work shall conform to applicable specifications and standards and comply with size, make, type and quality specified, or as specifically approved in writing by the COR. Manufactured and fabricated products shall be designed, fabricated and assembled in accordance with the best engineering and shop practices. Like parts of duplicate units shall be manufactured to standard sizes and gages and shall be interchangeable. Two or more items of the same kind shall be identical and manufactured by the same manufacturer. Products shall be suitable for service conditions. Equipment capacities, sizes and dimensions shown or specified shall be adhered to unless variations are specifically approved in writing. Do not use material or equipment for any purpose other than for which it is designed or specified. Furnish and install products specified, under options and conditions for substitution stated in this section.

1. Manufacturer's instructions.- When contract documents require that installation of work shall comply with manufacturer's printed instructions, copies of such instructions shall be distributed to parties involved in the installation, including two copies to the COR. Maintain one set of complete instructions at the job site during installation and until completion. Products shall be handled, installed, connected, cleaned and conditioned in strict accordance with such instructions and in conformity with specified requirements. If job conditions or specified requirements conflict with manufacturer's instructions, the contractor shall consult with the COR for further instructions. All work shall be performed in accordance with manufacturer's instructions. No preparatory step or installation procedure shall be omitted unless specifically modified or exempted by contract documents.

2. Transportation and handling. - Products shall be delivered in undamaged condition, in manufacturer's original containers or packing, with identifying labels intact and legible. Shipments shall be inspected to ensure compliance with requirements of contract documents and approved submittals, and products are properly protected and undamaged immediately on delivery. Provide equipment and personnel to handle products by methods to prevent soiling or damage to products or packing.

3. Storage. - Unless specified, products shall be stored in accordance with manufacturer's instructions, with seals and labels intact and legible. Products subject to damage by the elements shall be stored in weather tight enclosures.

4. Temperature. - Temperature and humidity shall be maintained within the ranges required by the manufactures instructions. Fabricated products shall be stored above the ground, on blocking or skids to prevent soiling or staining. Products which are subject to deterioration shall be covered with impervious sheet coverings and adequate ventilation shall be provided to avoid condensation.

5. Substitutions. - A separate request for each substitution shall be submitted. Each request shall be supported with complete data substantiating compliance of proposed substitution with the requirements stated in the contract documents. Each request shall include product identification, manufacturer's literature including address, product description, reference standards and performance and test data. Samples shall be submitted as applicable. An itemized comparison of the proposed substitution with the product specified shall be included. The following information shall also be included: data relating to changes in the

construction schedule; list of changes required in other work or products; and accurate cost data. Substitute products shall not be ordered or installed without written acceptance. In making a formal request for substitution, the contractor represents that he has investigated the proposed products and has determined that it is equal to or superior in all respects to that specified. The contractor ascertains that he will provide same warranties or bonds for substitutions as for product specified. That he will coordinate installation of accepted substitution into work to be complete in all respects; that he waives claims for additional costs caused by substitution which may subsequently become apparent; and that cost data is complete and includes related costs under his contract. Primarily, an "or equal" product will not be considered a substitution. If an actual substitution is accepted, it shall be done only by formal contract modification and not by a submittal approval.

6. New equipment and materials – All contractor supplied materials and equipment that will remain in the government's custody after contract completion, shall be new. Refurbished and or used equipment and materials are disallowed for construction purposes under this contract.

END OF SECTION 01651

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SECTION 01 65 20 PROTECTION OF WORK

PART 1 - GENERAL

1.1 SUMMARY

A. Requirements Included. - It shall be the Contractor's responsibility to provide protection of work from weather, physical damage, improper use, and other adverse natural conditions. It shall be the responsibility of the Contractor to replace any damaged work including finishes, material, and equipment.

1.2 RELATED REQUIREMENTS. - The Respective Section of the Specification covering items of work.

Section 01 65 10: Materials and Equipment
Section 01 71 00: Cleaning

B. Protection during Installation.

1. Sleeves. - Provide watertight closures for sleeve openings below grade.

2. Building Openings. - Provide protection of temporary openings in the building to completely protect the contents and enable work to progress, during winter and all weather conditions. The method and means shall be subject to approval by the COR.

3. Base Materials. - Provide protection of base materials to receive finishes from physical damage.

4. Protection after Installation. - Provide protection of installed products and finished surfaces to prevent damage from subsequent operations. Remove when no longer needed, prior to completion of work.

5. Floors and Stairs.- Protect finished floors and stairs from dirt and damage:

(a) In areas subject to foot traffic, secure heavy sheathing in place.
(b) For movement of heavy products, lay planking or similar materials in place.
(c) For storage of products, lay tight wood sheathing in place.

6. When some activity must take place in order to carry out the contract, obtain and abide by recommendations of installer for protection of surface. Remove upon completion of the activity.

END OF SECTION 01 65 20

* * * *

SECTION 01 71 00 CLEANING

PART 1 - GENERAL

1-1 SUMMARY

The scope of this project will be performed in a partially occupied special use environment. Daily cleaning and protection of critical electronic equipment shall be a requirement. All prospective bidders are encouraged to visit the project site to ascertain the criticality of maintaining a clean and dust free environment.

A. Requirements Included.

1. Execute cleaning during the progress of work. This includes but not limited to the following:
   a) Wipe all surfaces within the limits of work at the end of each shift.
   b) Vacuum all floors where work took place.
   c) Remove temporary protective covers at the end of each shift.
2. Execute cleaning for final inspection.
3. Execute cleaning at completion of the work.

RELATED REQUIREMENTS

Section 01651: Materials and Equipment
Section 01800: Contract Closeout.

1-2 PRODUCTS

A. Materials. - Use only those cleaning materials recommended by the manufacturers of the surface being cleaned so as not to create hazards to health or property.

1-3 EXECUTION

A. Disposal Requirements. - Conduct cleaning and disposal operations to comply with codes, ordinances, regulations, and anti-pollution laws.

B. Dust Control.
1. Clean interior spaces prior to the start of finish painting and continue cleaning on as needed basis until painting is finished.
2. Schedule operations so that dust and other contaminants resulting from the cleaning process will not fall on wet or newly-coated surface.

C. Final Cleaning.
1. Employ skilled workmen for final cleaning.
2. Remove grease, mastic, adhesive, dust, dirt, stains, fingerprints, labels, and other foreign materials from visible interior and exterior surfaces.
3. Ventilating system:
4. Clean permanent filters and replace disposable filters if units were operated during construction. Do not operate blowers and coils without filters during construction.
5. Broom clean exterior paved surfaces, repair damaged sod areas with sod and rake. Clean other surfaces of the grounds.
6. Prior to final completion, or owner occupancy, Contractor shall conduct an inspection of interior and exterior surfaces, and all work areas to verify that the entire work is clean.
7. Wax and polish tile floors affected by construction.

D. During Construction. - Maintain all areas under Contractor's control free of extraneous debris. Conduct a specific maintenance program to prevent accumulation of debris at the construction site, storage and parking areas, and along access roads and haul routes.

E. ARTCC Operational Areas. - Clean up after each work shift.

F. Debris Collection. - Provide containers for debris deposit and schedule periodic collections and disposal of debris. Provide additional collections whenever the periodic schedule is inadequate to prevent accumulation.

END OF SECTION 01710

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SECTION 01 73 00 - OSHA SAFETY REQUIREMENTS

PART 1 – GENERAL

1.1 SCOPE

A. This section identifies some of the requirements of the OSHA Construction Standard.

B. Formulation of a site specific safety plan

1.2 CONTRACTOR RESPONSIBILITY

A. General Safety Provisions - The Contractor shall bear full responsibility to provide safe working conditions for its employees and Contractors. The Contractor shall not permit any employee or Subcontractor to work in surroundings or under working conditions that are unsanitary, hazardous, or dangerous to the health and safety of the employee.

B. Accident Prevention - The Contractor shall bear the responsibility of maintaining an accident prevention program such that frequent and regular inspections of the job site, materials and equipment are made by a competent person designated by the employer.

C. Use of Equipment - The Contractor shall not permit the use of any machinery, tool, material, or equipment that is not in compliance with OSHA regulations. The employer shall permit only those employees qualified by training and/or experience to operate equipment and machinery.

1.3 SUBMITTALS

A. Submittals required include, but are not necessarily limited to, the following:

1. Contractor Safety Plan

1.4 CONTRACTOR RESPONSIBILITY

A. The FAA shall not be held responsible for safety inspections to assure Contractor conformance with the OSHA safety regulations. The FAA, however, reserves the right to notify the Contractor of any deficiencies regarding worker safety.

B. The FAA will evaluate the Contractor on its safety performance, including that of its Subcontractors. The number and severity of safety and security violations will be considered in this evaluation. Contractor safety violations are cause for termination for default, may result in notification of the Contractor's bonding company, and will affect the Contractor's opportunity to propose on future work. Failure to correct such deficiencies may impact the Contractor's ability to work on future FAA contracts.

1.5 OSHA REGULATIONS

A. The Contractor shall comply with the latest Occupational Safety and Heath Administration regulations (CFR 29 Part 1926) regarding safety in the work area.

B. The Contractor shall be responsible for obtaining copies of non-FAA referenced documents without additional cost to the FAA. If Contractor requests a copy of FAA directives, they may be obtained by contacting the Contracting Officer.

C. The Contractor is not relieved from adhering to other OSHA requirements not listed herein. The Contractor shall consult the latest referenced OSHA documents for safety regulations.

1. Documents:
   a) OSHA Documents:
      1) CFR 29 Part 1926Safety and Health Regulations for Construction
      2) CFR 29 Part 1910 General Industry Standards Applicable to Construction Industry
   b) FAA Documents:
      1) FAA Order 3900.49 Control of Hazardous Energy During Maintenance, Servicing and Repair

1.6 SAFETY PLAN

The contractor must develop and implement a site specific comprehensive Health and Safety Plan (HASP) based on the scope of work, for his or her employees as well as others in the area and the properties around. It shall cover all aspects of onsite construction operations and activities associated with the contract. This plan must comply with 29 CFR 1926, FAA Order 3900.19B, other applicable health and safety regulations and any project-specific requirements. The contractor must provide the Contracting Officer with a copy of this plan. Acceptance of the contractor's HASP only signifies that the plan generally conforms to the requirements of the contract. It does not relieve the contractor of the responsibility for providing with a safe and healthful work environment. At a minimum the HASP shall address the following:

A. Workplace address

B. Name and address of the principal contractor

C. Key Personnel, phone nos and addresses

D. Estimated duration of the work

E. Hazard assessment and identification of the hazards in the scope of work

F. Mitigation of hazards and proposed control measures for the risks

G. Hazard Communication methods

H. How the controls will be implemented

I. Personal Protective Equipment

J. Training

K. Temperature Extreme

L. Medical Surveillance

M. Exposure Monitoring and Air Sampling

N. Site Control

O. Emergency Response/Contingency Plan

P. Emergency Action Plan

Q. Confined Space Entry

R. Spill Containment

S. Documentation and Record Control

T. Arrangements for monitoring and reviewing controls

U. Lock-out and Tag-out

The plan must be written so it is easy to understand, signed and dated by the General Contractor. It must be available for the length of the project. The General Contractor cannot allow work to start unless the plan has been discussed with or a copy given to all relevant people and the plan is readily available for inspection. The plan must be amended if there are changes in how risks will be managed. The General Contractor must inform any affected person of the change.

PART 2 – MATERIAL

NOT USED

PART 3 – EXECUTION

3.1 CFR 29 PART 1926 - SAFETY AND HEALTH REGULATIONS FOR CONSTRUCTION

A. This section contains a partial listing of the referenced OSHA standards. The Contractor is responsible for adhering to all applicable regulations including those not specifically referenced herein.

1. Subpart D (Occupational Health and Environmental Controls) - Contractor shall furnish adequate supply of potable water in containers clearly marked as potable water. Containers containing non-potable water shall be clearly marked. Contractor shall furnish toilet facilities based on the number of employees present on the job-site. A minimum of 1 facility is required for less than 20 employees. See CFR 29 Part 1926 Subpart D for complete requirements.

2. Subpart E (Personal Protective Equipment) - The Contractor shall provide adequate protection for the head, hearing, and eyes for all employees working in an area where hazards to the head, ear and eyes exist. See CFR 29 Part 1926 Subpart E for complete requirements.
3. Subpart I (Tools) - All hand tools and power tools and similar equipment whether furnished by the Contractor or the employee shall be maintained and operated in a safe condition. Personal protection shall be used when applicable. The use of tools shall be limited to the intended use of said tools. See CFR 29 Part 1926 Subpart I for complete requirements.
4. Subpart K (Electrical) - The Contractor shall furnish ground fault protection for all electrical equipment used on the jobsite. Extension cords shall be three wire ground in good shape. Installation of the facilities will require energizing numerous circuits. The Contractor shall protect against electrical shock by methods such as posting warning signs, supplying insulated gloves, locking out and tagging de-energized circuits, and other similar methods. See CFR 29 Part 1926 Subpart K for complete requirements.

3.2 CFR 29 PART 1910 - GENERAL INDUSTRY STANDARDS APPLICABLE TO CONSTRUCTION INDUSTRY

A. This section contains a partial listing of the referenced OSHA standards. The Contractor is responsible for adhering to all applicable regulations including those not specifically referenced herein.

1. Section 1910.147 - Contractor shall maintain a written hazardous energy control procedure in accordance with CFR 29 1910.147. The written procedure shall describe contractor's responsibilities regarding shift changes or personnel changes. A specific coordinated lockout/tagout procedure shall be recorded in writing and signed by the Contractor and Contracting Officer with copies to each party.
2. Section 1910.120 - The Contractor shall develop and implement an Emergency Response and Contingency Plan in accordance with OSHA Standard 29 CFR 1910.120. In the event of an emergency associated with remedial action, the Contractor shall, without delay, take diligent action to remove or otherwise minimize the cause of the emergency; alert the Contractor; and institute whatever measures might be necessary to prevent any repetition of the conditions of actions leading to, or resulting in, the emergency. Emergency contact names and telephone numbers shall be posted at all project phones and in site-support vehicles as well as included within the plan.

PART 4 – QUALITY ASSURANCE

NOT USED

* * * END OF SECTION 01730 * * *

SECTION 01 80 00 CONTRACT CLOSE OUT

PART 1 - GENERAL

1.1 SUMMARY

The contractor shall require each subcontractor engaged upon the work to bear full responsibility for cleaning up during and immediately upon completion of his work. All rubbish, waste, tools, equipment and other apparatus caused by or used in the execution of his work shall be removed. This shall in no way be construed to relieve the contractor of his primary responsibility for maintaining the building and the site clean and free of debris, and leaving all work in a clean and proper condition acceptable to the COR. All exposed floor surfaces shall be protected against all mechanical damage, mortar or plaster droppings, oil, grease, or other damage that will stain or soil the finish. Protection shall be maintained until all work has been completed.

A. Rubbish removal. - Immediately after unpacking, all packing material, case lumber, wrappings, or other rubbish, flammable or otherwise, shall be collected and removed from the building and the premises.

B. Overall cleaning.- Immediately before the final inspection, the entire exterior and interior of the building and the surrounding areas shall be thoroughly cleaned by the contractor, including but not limited to the following:

1. All construction facilities, debris and rubbish shall be removed from the building and the site.
2. All finished surfaces disturbed by this construction shall be swept, dusted, vacuumed, washed or polished as required.
3. All tools, scaffolding, temporary utility connections or buildings, belonging to the contractor or used under his direction shall be removed from the site.

1.2 PROJECT RECORD DOCUMENTS

A. Maintenance of documents.- The following documents shall be maintained at the project site:

1. Contract drawings
2. Contract specifications
3. Addenda
4. Reviewed shop drawings
5. Change orders
6. Field test reports
7. Project correspondence
8. Software information specific to this project
9. Other modifications to contract

B. Storage and use of documents. - Store record documents apart from documents used for construction; do not use record documents for construction purposes. Keep documents in clean, dry, legible condition; provide file cabinets and racks for storage of drawings.

C. Marking devices. - Use red colored pencil for all marking.

D. Recording and labeling. - Label each document "Project Record" in 1-inch high printed block letters. Keep record documents current. Do not conceal or cover up any item of work until the information has been recorded.

E. Submittals. - At completion of project, deliver record documents to COR. Accompany submittal with transmittal letter containing the following:

1. Date
2. Project title and number
3. Contractor's name and address.
4. Title and number of each record document
5. Certification that each document as submitted is complete and accurate.
6. Signature of contractor, or his authorized representative

1.3 CONTRACT DOCUMENTS

A. Contract drawings.- Legibly mark to record actual construction:

1. Horizontal and vertical location of underground and overhead utilities and appurtenances referenced to permanent surface improvements.
2. Location of internal utilities and appurtenances concealed in construction referenced to visible and accessible features of structure.
3. Field changes of dimension and detail.
4. Changes made by change order or field order.
5. Details not on originally specified drawings.

B. Contractor specifications and addenda.- Legibly mark each section to record:

1. Manufacturer, trade name, catalog number, and supplier of each item of equipment actually installed.
2. Changes made by change order or field order.
3. Other matters not originally specified.

C. Shop drawings. - Shop drawings shall be maintained as record documents; legibly annotate drawings to record changes made after review.

1.4 COMPLETION CERTIFICATE

When the contractor considers the work complete, the contractor shall submit written certification that contract documents have been reviewed; work has been inspected for compliance with contract; equipment and systems have been tested in the presence of the RE and are operational. Second, the contractor also certifies that the required operational, and maintenance manuals, data, and parts list have been submitted and approved; spare parts have been provided as required; required instruction of maintenance personnel has been accomplished; work is completed, premises cleaned and ready for inspection; and the warranty certificates from all new equipment manufacturers have been provided.

1.5 FINAL INSPECTION

A written request for a final inspection shall be sent to the Resident Engineer fourteen (14) calendar days prior to the requested inspection date. The final inspection shall be scheduled at a mutually agreed upon date, and will be acknowledged by the Resident Engineer. The contractor shall develop his own pre-final inspection and correct all deficiencies prior to requesting the final inspection. The pre-final report shall accompany the final inspection request.

If, during the final inspection, the Resident Engineer, in concurrence with the inspection team and the Contracting Officer, determines that the contractor was not ready for the final inspection, based on the contractor not meeting all of the contractual requirements, all costs incurred by the Government for

additional inspections shall be deducted from the contract (including but not limited to: travel cost, per diem, salaries of all concerned parties, consultant engineer personnel, and FAA personnel required to participate in the final inspection). This dollar amount shall be the actual cost incurred by the FAA to perform the final inspection.

1.6 PUNCH LIST

During the final inspection, the Resident Engineer, in coordination with the regional office and local FAA personnel shall develop a list (Punch List) of all deficiencies (unsatisfactory work, latent or patent defects, etc.). A copy of the punch list will be furnished to the contractor as a draft list after the final inspection, while the original copy will be forwarded to the Contracting Officer. Only one official punch list shall be generated by the inspection team.

The Contracting Officer will furnish to the contractor the official punch list within fourteen calendar days after completion of the final inspection. The contractor shall be allowed 30 calendar days to correct all deficiencies noted.

1.7 ACCEPTANCE OF WORK

The contractor shall correct discrepancies noted during the final inspection, clean the premises, and notify the Resident Engineer that the work is ready for acceptance. The Resident Engineer shall verify that the official punch list has been accomplished and initialize and date each item as it is completed.

END OF SECTION 01800

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SECTION 07 90 00 - JOINT SEALANTS

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes low-VOC and Low-Odor joint sealants for the following locations:

1. Perimeter joints between interior wall surfaces and frames of interior doors.
2. Tile wall and floor joints.
3. Other joints as indicated.

1.2 SYSTEM PERFORMANCE REQUIREMENTS

A. Provide elastomeric joint sealants that have been produced and installed to establish and to maintain watertight and airtight continuous seals without causing staining or deterioration of joint substrates.

B. Provide joint sealants for interior applications that have been produced and installed to establish and maintain airtight continuous seals that are water resistant and cause no staining or deterioration of joint substrates.

C. Provide products that will not produce off-gassing of VOC's after product is installed and properly cured.

1.3 SUBMITTALS

A. Product data from manufacturers for each joint sealant product required.

1. Certification by joint sealant manufacturer that sealants plus the primers and cleaners required for sealant installation comply with local regulations controlling use of volatile organic compounds.
2. Provide Material Safety Data Sheets (MSDS) for the following:

a. Elastomeric joint sealants
b. Latex joint sealants.
c. Primer.
d. Cleaners for nonporous surfaces.

B. Samples for initial selection purposes in form of manufacturer's standard bead samples, consisting of strips of actual products showing full range of colors available, for each product exposed to view.

C. Certificates from manufacturers of joint sealants attesting that their products comply with specification requirements and are suitable for the use indicated.

D. Qualification data complying with requirements specified in "Quality Assurance" article. Include list of completed projects with project names addresses, names of Architects and Owners, plus other information specified.

E. Compatibility and adhesion test reports from elastomeric sealant manufacturer indicating that materials forming joint substrates and joint sealant backings have been tested for compatibility and adhesion with joint sealants. Include sealant manufacturer's interpretation of test results relative to sealant performance and recommendations for primers and substrate preparation needed to obtain adhesion.

F. Product test reports for each type of joint sealants indicated, evidencing compliance with requirements specified.

G. Preconstruction field test reports, indicating which products and joint preparation methods demonstrate acceptable adhesion to joint substrates.

1.4 QUALITY ASSURANCE

A. Installer Qualifications: Engage an experienced Installer who has completed joint sealant applications similar in material, design, and extent to that indicated for Project that have resulted in construction with a record of successful in-service performance.

B. Single Source Responsibility for Joint Sealant Materials: Obtain joint sealants and joint backer materials from a single manufacturer for each different product required.

C. Conduct Testing: Provide comprehensive test data for each type of joint sealant based on tests conducted by a qualified independent testing laboratory on current product formulations within a 24-month period preceding date of Contractor's submittal of test results to COTR.

1. Test elastomeric sealants for compliance with requirements specified by reference to ASTM C920. Include test results for hardness, stain resistance, adhesion and cohesion under cyclic movement (per ASTM C719), low-temperature flexibility, modulus of elasticity at 100 percent strain, effects of heat aging, and effects of accelerated weathering.
2. Include test results performed on joint sealants after they have cured for 1 year.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Deliver materials to Project site in original unopened containers or bundles with labels indicating manufacturer, product name and designation, color, expiration period for use, pot life, curing time, and mixing instructions for multi-component materials.

B. Store and handle materials in compliance with manufacturer's recommendations to prevent their deterioration or damage due to moisture, high or low temperatures, contaminants, or other causes.

1.6 PROJECT CONDITIONS

A. Environmental Conditions: Do not proceed with installation of joint sealants under the following conditions:

1. When ambient and substrate temperature conditions are outside the limits permitted by joint sealant manufacturer or below 40 deg F.
2. When joint substrates are wet.

B. Joint Width Conditions: Do not proceed with installation of joint sealants where joint widths are less than allowed by joint sealant manufacturer for application indicated.

C. Joint Substrate Conditions: Do not proceed with installation of joint sealants until contaminants capable of interfering with their adhesion are removed from joint substrates.

1.7 SEQUENCING AND SCHEDULING

A. Sequence installation of joint sealants to occur not less than 21 nor more than 30 calendar days after completion of waterproofing, unless otherwise indicated.

PART 2 - PRODUCTS

2.1 MATERIALS, GENERAL

A. Compatibility: Provide joint sealants, joint fillers, and other related materials that are compatible with one another and with joint substrates under conditions of service and application, as demonstrated by sealant manufacturer based on testing and field experience.

B. Colors: Provide selections made by COTR from manufacturer's full range of standard colors for typical applications.

C. Provide VOC-compliant sealants. Products must not produce off-gassing after proper curing is achieved.

2.2 ELASTOMERIC JOINT SEALANTS

A. Elastomeric Sealant Standard: Provide manufacturer's standard chemically curing elastomeric sealants that comply with ASTM C 920.

B. Neutral-curing silicone as follows:

1. VOC Content: 0 g/L or 0 lbs. Per gallon less water and exempt solvents.
2. Type: Type S (ASTM C 920).
3. Grade NS (ASTM C 920).
4. Class: 25 (ASTM C 920).
5. Use: NT, A and M.

6. Shore A Hardness: 30 (ASTM D 2240)
7. Joint Movement Capability (after 14 cure days): Extension: 25%. Compression: 25%.
8. Tear Resistance: 18pli (ASTM D 624).
9. Elongation at Break: 320 percent (ASTM D 412).
10. Tensile Strength: 275psi (ASTM D 412).
11. Uses Related to Joint Substrates: Expansion and control joints in concrete and masonry; metal curtain walls, perimeter caulking of windows; conventional glazing. Adheres to metal, aluminum, galvanized steel, concrete and masonry. For exterior applications.
12. Available Products: Including but not limited to the following:

    a. Sonolastic Omni Seal by Sonneborn, ChemRex Inc., 889 Valley Park Drive, Shakopee, MN 55379

C. Multi-purpose mildew-resistant silicone sealant:

1. VOC Content: 0 g/L or 0 lbs. Per gallon less water and exempt solvents.
2. Type: Type S (ASTM C 920).
3. Grade NS (ASTM C 920).
1. Class: 25 (ASTM C 920).
2. Use: NT, G and A.
3. Shore A Hardness: 25 (ASTM C 661).
4. Ultimate Elongation: 425 percent (ASTM D 412)
5. Tensile Strength, psi: 330 (ASTM D 412)
6. Movement Capability: 25 (ASTM C 719).
7. Extrusion Rate: 350 g/min.
8. Use Related to Exposure: NT (non-traffic).
9. Uses Related to Joint Substrates: Glass, Aluminum, Tile, Fiberglass, Countertops, and Nonstructural glazing. For interior and exterior applications.
10. Available Products: Including but not limited to the following:

    a. Sonolastic OmniPlus by Sonneborn, ChemRex Inc., 889 Valley Park Drive, Shakopee, MN 55379

D. Low-Modulus, high-movement, fast-curing sealant:

1. VOC Content: 2.07 g/L or 0.02 lbs. per gallon. Complies with low-VOC regulations.
2. Type: S (ASTM C 920).
3. Grade: NS (ASTM C 290).
4. Class: 25 (ASTM C 290).
5. Use: NT, M, A, G and O.
6. Tensile Strength: 290 psi (ASTM D 412).
7. Ultimate Elongation at Break: 865 percent (ASTM D 412).
8. Hardness, Shore A: 20 (ASTM C 661).
9. Tear Strength: 70 lb/in (ASTM D 1004).
10. Use: Glass, aluminum, concrete, masonry, wood, stone, curtain wall construction, expansion wall joints. Interior and exterior use. Do not use on horizontal traffic-bearing surfaces.

11. Available Products:

a. Sonolastic 150 by Sonneborn, ChemRex, Inc. 889 Valley park Drive, Shakopee, MN 55379.

2.3 JOINT SEALANT BACKING

A. General: Provide sealant backings of material and type that are non-staining; are compatible with joint substrates, sealants, primers and other joint fillers; and are approved for applications indicated by sealant manufacturer based on field experience and laboratory testing. Provide backing and filler material by sealant manufacturer to greatest extent possible, or products recommended by sealant manufacturer.

B. Plastic Foam Joint Fillers: Preformed, compressible, resilient, non-staining, non-waxing, non-extruding strips of flexible plastic foam of material indicated below and of size, shape, and density to control sealant depth and otherwise contribute to producing optimum sealant performance:

1. Open-cell polyurethane foam.
2. Closed-cell polyethylene foam, nonabsorbent to liquid water and gas, non outgassing in unruptured state.

C. Bond-Breaker Tape: Polyethylene tape or other plastic tape as recommended by sealant manufacturer for preventing sealant from adhering to rigid, inflexible joint filler materials or joint surfaces at back of joint where such adhesion would result in sealant failure. Provide self-adhesive tape where applicable.

2.4 MISCELLANEOUS MATERIALS

A. Primer: Material recommended by joint sealant manufacturer where required for adhesion of sealant to joint substrates indicated, as determined from preconstruction joint sealant-substrate tests and field tests.

B. Cleaners for Nonporous Surfaces: Chemical cleaners acceptable to manufacturers of sealants and sealant backing materials, free of oily residues or other substances capable of staining or harming in any way joint substrates and adjacent nonporous surfaces, and formulated to promote optimum adhesion of sealants with joint substrates.

C. Masking Tape: Non-staining, nonabsorbent material compatible with joint sealants and surfaces adjacent to joints.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine joints indicated to receive joint sealants, with Installer present, for compliance with requirements for joint configuration, installation tolerances, and other conditions affecting joint sealant performance. Do not proceed with installation of joint sealants until unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Surface Cleaning of Joints: Clean out joints immediately before installing joint sealants to comply with recommendations of joint sealant manufacturer and the following requirements:

1. Remove all foreign material from joint substrates that could interfere with adhesion of joint sealant, including dust, paints (except for permanent, protective coatings tested and approved for sealant adhesion and compatibility by sealant manufacturer), old joint sealants, oil, grease, waterproofing, water repellents, water, surface dirt, and frost.
2. Clean concrete, masonry, unglazed surfaces of ceramic tile, and similar porous joint substrate surfaces by brushing, grinding, blast cleaning, mechanical abrading, or a combination of these methods to produce a clean, sound substrate capable of developing optimum bond with joint sealants. Remove loose particles remaining from above cleaning operations by vacuuming or blowing out joints with oil-free compressed air.
3. Clean metal, glass and other nonporous surfaces with chemical cleaners or other means that do not stain, harm substrates, or leave residues capable of interfering with adhesion of joint sealants.

B. Joint Priming: Prime joint substrates where indicated or where recommended by joint sealant manufacturer based on preconstruction joint sealant-substrate tests or prior experience. Apply primer to comply with joint sealant manufacturer's recommendations. Confine primers to areas of joint sealant bond; do not allow spillage or migration onto adjoining surfaces.

C. Masking Tape: Use masking tape where required to prevent contact of sealant with adjoining surfaces that otherwise would be permanently stained or damaged by such contact or by cleaning methods required to remove sealant smears. Remove tape immediately after tooling without disturbing joint seal.

3.3 INSTALLATION OF JOINT SEALANTS

A. General: Comply with joint sealant manufacturer's printed installation instructions applicable to products and applications indicated, except where more stringent requirements apply.

B. Sealant Installation Standard: Comply with recommendations of ASTM C 1193 for use of joint sealants as applicable to materials, applications, and conditions indicated.

C. Installation of Sealant Backings: Install sealant backings to comply with the following requirements:

1. Install joint fillers of type indicated to provide support of sealants during application and at position required to produce the cross-sectional shapes and depths of installed sealants relative to joint widths that allow optimum sealant movement capability.

    a. Do not leave gaps between ends of joint fillers.
    b. Do not stretch, twist, puncture, or tear joint fillers.
    c. Remove absorbent joint fillers that have become wet prior to sealant application and replace with dry material.

2. Install bond breaker tape between sealants where backer rods are not used between sealants and joint fillers or back of joints.

D. Installation of Sealants: Install sealants by proven techniques that result in sealants directly contacting and fully wetting joint substrates, completely filling recesses provided for each joint configuration, and providing uniform, cross-sectional shapes and depths relative to joint widths that allow optimum sealant movement capability. Install sealants at the same time sealant backings are installed.

E. Tooling of Non-sag Sealants: Immediately after sealant application and prior to time skinning or curing begins, tool sealants to form smooth, uniform beads of configuration indicated, to eliminate air pockets, and to ensure contact and adhesion of sealant with sides of joint. Remove excess sealants from surfaces adjacent to joint. Do not use tooling agents that discolor sealants or adjacent surfaces or are not approved by sealant manufacturer.

1. Provide concave joint configuration per Figure 5A in ASTM C1193, unless otherwise indicated.
2. Use masking tape to protect adjacent surfaces of recessed tooled joints.

3.4 CLEANING: Clean off excess sealants or sealant smears adjacent to joints as work progresses by methods and with cleaning materials approved by manufacturers of joint sealants and of products in which joints occur.

3.5 PROTECTION: Protect joint sealants during and after curing period from contact with contaminating substances or from damage resulting from construction operations or other causes so that they are without deterioration or damage at time of Substantial Completion. If, despite such protection, damage or deterioration occurs, cut out and remove damaged or deteriorated joint sealants immediately so that and installations with repaired areas are indistinguishable from original work.

END OF SECTION 07 90 00

SECTION 09 90 00 PAINTING

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes surface preparation and field painting of exposed interior items and surfaces, including, but not limited to the following:

1. Metal doors, frames and trim
2. Metal handrails
3. Metal canopies and columns
4. Metal siding
5. Metal gutters and downspouts

B. Paint exposed surfaces, except where these Specifications indicate that the surface or material is not to be painted or is to remain natural. If an item or a surface is not specifically mentioned, paint the item or surface the same as similar adjacent materials or surfaces. If a color of finish is not indicated, COTR will select from standard colors and finishes available.

C. Do not paint prefinished items, concealed surfaces, finished metal surfaces, operating parts, and labels.

1. Prefinished items include the following factory-finished components:
   a. Finished mechanical and electrical equipment.
   b. Light fixtures.
   c. Building signage

2. Finished metal surfaces include the following:

   a. Anodized aluminum.
   b. Stainless steel.
   c. Chromium plate.
   d. Copper and copper alloys.
   e. Bronze and brass.

3. Labels: Do not paint over UL, FMG, or other code-required labels or equipment name, identification, performance rating, or nomenclature plates.

1.2 DEFINITIONS

A. General: Standard coating terms defined in ASTM D 16 apply to this Section.

1. Flat refers to a lusterless or matte finish with a gloss range below 15 when measured at an 85-degree meter.
2. Eggshell refers to low-sheen finish with a gloss range between 20 and 35 when measured at a 60-degree meter.

3. Semigloss refers to medium-sheen finish with a gloss range between 35 and 70 when measured at a 60-degree meter.
4. Pearl is a Benjamin Moore designation for a low-luster (satin) finish.

1.3 SUBMITTALS

A. Product Data: For each paint system indicated. Include block fillers and primers.

1. Material List: An inclusive list of required coating materials. Indicate each material and cross-reference specific coating, finish system, and application. Identify each material by manufacturer's catalog number and general classification.
2. Manufacturer's Information: Manufacturer's technical information, including label analysis and instructions for handling, storing, and applying each coating material.
3. Certification by the manufacturer that products supplied comply with local regulations controlling use of volatile organic compounds (VOCs).
4. For interior primers and finish coats to be applied in occupied portions of a building, all materials submitted shall be products identified by the manufacture as "low VOC".
5. MSDS for each paint product used.

B. Qualification Data: For Applicator.

1.4 QUALITY ASSURANCE

A. Applicator Qualifications: A firm or individual experienced in applying paints and coatings similar in material, design, and extent to those indicated for this Project, whose work has resulted in applications with a record of successful in-service performance.

B. Source Limitations: Obtain primers for each coating system from the same manufacturer as the finish coats.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Deliver materials to Project site in manufacturer's original, unopened packages and containers bearing manufacturer's name and label and the following information:

1. Product name or title of material.
2. Product description (generic classification or binder type).
3. Manufacturer's stock number and date of manufacture.
4. Contents by volume, for pigment and vehicle constituents.
5. Thinning instructions.
6. Application instructions.
7. Color name and number.
8. VOC content.

B. Store materials not in use in tightly covered containers in a well-ventilated area at a minimum ambient temperature of 45 deg F. Maintain storage containers in a clean condition, free of foreign materials and residue.

1. Protect from freezing. Keep storage area neat and orderly. Remove oily rags and waste daily.

1.6 PROJECT CONDITIONS

A. Apply waterborne paints only when temperatures of surfaces to be painted and surrounding air are between 50 and 90 deg F.

B. Do not apply paint in snow, rain, fog, or mist; or when relative humidity exceeds 85 percent; or at temperatures less than 5 deg F above the dew point; or to damp or wet surfaces.

1. Painting may continue during inclement weather if surfaces and areas to be painted are enclosed and heated within temperature limits specified by manufacturer during application and drying periods.

1.7 EXTRA MATERIALS

A. Furnish extra paint materials from the same production run as the materials applied and in the quantities described below. Package with protective covering for storage and identify with labels describing contents. Deliver extra materials to FAA.

1. Quantity: Furnish FAA with extra paint materials in quantities indicated below:

a. Exterior, Direct To Metal Acrylic: 1 gallon.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Products: Subject to compliance with requirements, provide one of the products listed in other Part 2 articles.

2.2 PAINT MATERIALS, GENERAL

A. Material Compatibility: Provide block fillers, primers, and finish-coat materials that are compatible with one another and with the substrates indicated under conditions of service and application, as demonstrated by manufacturer based on testing and field experience.

B. Material Quality: Provide manufacturer's best-quality paint material of the various coating types specified that are factory formulated and recommended by manufacturer for application indicated. Paint-material containers not displaying manufacturer's product identification will not be acceptable.

1. Proprietary Names: Use of manufacturer's proprietary product names to designate colors or materials is not intended to imply that products named are required to be used to the exclusion of equivalent products of other manufacturers. Furnish manufacturer's material data and certificates of performance for proposed substitutions.

C. Chemical Components of Interior Paints and Coatings: Provide products that comply with the following limits for VOC content when calculated according to 40 CFR 59, Subpart D (EPA Method 24) and the following chemical restrictions:

1. Flat Paints and Coatings: VOC content of not more than 50 g/L.
2. Non-Flat Paints and Coatings: VOC content of not more than 150 g/L.
3. Aromatic Compounds: Paints and coatings shall not contain more than 1.0 percent by weight of total aromatic compounds (hydrocarbon compounds containing one or more benzene rings).
4. Restricted Components: Paints and coatings shall not contain any of the following:

   a. Acrolein
   b. Acrylonitrile
   c. Antimony
   d. Benzene
   e. Butyl benzyl phthalate
   f. Cadmium
   g. Di (2-ethylhexyl) phthalate
   h. Di-n-butyl phthalate
   i. Di-n-octyl phthalate
   j. 1,2-dichlorobenzene
   k. Diethyl phthalate
   l. Dimethyl phthalate
   m. Ethylbenzene
   n. Formaldehyde
   o. Hexavalent chromium
   p. Isophorone
   q. Lead
   r. Mercury
   s. Methyl ethyl ketone
   t. Methyl isobutyl ketone
   u. Methylene chloride
   v. Naphthalene
   w. Toluene (methylbenzene).

D. Colors: Provide color selections as specified in Material and Finish Schedule. If not on Material and Finish Schedule, provide colors to match adjacent surfaces.

2.3 EXTERIOR COATINGS

A. Direct to Metal (DTM) Acrylic coating; semi-gloss or gloss as approved by COTR.

1. Benjamin Moore; Industrial Maintenance Coatings M29 DTM: Applied at a dry film thickness of not less than 1.5 mils.
2. Pittsburgh Paints; Pitt-Tech DTM Industrial Enamels 90 Series: Applied at a dry film thickness of not less than 1.5 mils.
3. Sherwin-Williams; DTM Acrylic Coating, B66-100 or B66-200 Series: Applied at a dry film thickness of not less than 2.5 mils.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates, areas, and conditions, with Applicator present, for compliance with requirements for paint application.

1. Proceed with paint application only after unsatisfactory conditions have been corrected and surfaces receiving paint are thoroughly dry.
2. Start of painting will be construed as Applicator's acceptance of surfaces and conditions within a particular area.

B. Coordination of Work: Review other Sections in which primers are provided to ensure compatibility of the total system for various substrates. On request, furnish information on characteristics of finish materials to ensure use of compatible primers.

1. Notify COTR about anticipated problems when using the materials specified over substrates primed by others.

3.2 PREPARATION

A. General: Remove hardware and hardware accessories, plates, machined surfaces, lighting fixtures, and similar items already installed that are not to be painted. If removal is impractical or impossible because of size or weight of the item, provide surface-applied protection before surface preparation and painting.

1. After completing painting operations in each space or area, reinstall items removed using workers skilled in the trades involved.

B. Cleaning: Before applying paint or other surface treatments, clean substrates of substances that could impair bond of the various coatings. Remove oil and grease before cleaning.

1. Schedule cleaning and painting so dust and other contaminants from the cleaning process will not fall on wet, newly painted surfaces.

C. Surface Preparation: Clean and prepare surfaces to be painted according to manufacturer's written instructions for each particular substrate condition and as specified.

1. Provide barrier coats over incompatible primers or remove and reprime.

2. Ferrous Metals: Clean ungalvanized ferrous-metal surfaces that have not been shop coated; remove oil, grease, dirt, loose mill scale, and other foreign substances. Use solvent or mechanical cleaning methods that comply with SSPC's recommendations.

a. Treat bare and sandblasted or pickled clean metal with a metal treatment wash coat before priming.
b. Touch up bare areas and shop-applied prime coats that have been damaged. Wire-brush, clean with solvents recommended by paint manufacturer, and touch up with same primer as the shop coat.

3. Galvanized Surfaces: Clean galvanized surfaces with nonpetroleum-based solvents so surface is free of oil and surface contaminants. Remove pretreatment from galvanized sheet metal fabricated from coil stock by mechanical methods. Lightly etch surface if necessary to promote adhesion of paints.

D. Material Preparation: Mix and prepare paint materials according to manufacturer's written instructions.

1. Maintain containers used in mixing and applying paint in a clean condition, free of foreign materials and residue.
2. Stir material before application to produce a mixture of uniform density. Stir as required during application. Do not stir surface film into material. If necessary, remove surface film and strain material before using.
3. Use only thinners approved by paint manufacturer and only within recommended limits.

E. Tinting: Tint each undercoat a lighter shade to simplify identification of each coat when multiple coats of same material are applied. Tint undercoats to match the color of the finish coat, but provide sufficient differences in shade of undercoats to distinguish each separate coat.

3.3 APPLICATION

A. General: Apply paint according to manufacturer's written instructions. Use applicators and techniques best suited for substrate and type of material being applied.

1. Paint colors, surface treatments, and finishes are indicated in the paint schedules.
2. Do not paint over dirt, rust, scale, grease, moisture, scuffed surfaces, or conditions detrimental to formation of a durable paint film.
3. Provide finish coats that are compatible with primers used.
4. The term "exposed surfaces" includes areas visible when permanent or built-in fixtures, grilles, convector covers, covers for finned-tube radiation, and similar components are in place. Extend coatings in these areas, as required, to maintain system integrity and provide desired protection.
5. Paint surfaces behind movable equipment and furniture the same as similar exposed surfaces. Before final installation of equipment, paint surfaces behind permanently fixed equipment or furniture with prime coat only.
6. Paint interior surfaces of ducts with a flat, nonspecular black paint where visible through registers or grilles.
7. Paint back sides of access panels and removable or hinged covers to match exposed surfaces.

B. Scheduling Painting: Coordinate with COTR application of paint. Apply first coat to surfaces that have been cleaned, pretreated, or otherwise prepared for painting as soon as practicable after preparation and before subsequent surface deterioration.

1. The number of coats and film thickness required are the same regardless of application method. Do not apply succeeding coats until previous coat has cured as recommended by manufacturer. If sanding is required to produce a smooth, even surface according to manufacturer's written instructions, sand between applications.
2. Omit primer over metal surfaces that have been shop primed and touchup painted.

3. If undercoats, stains, or other conditions show through final coat of paint, apply additional coats until paint film is of uniform finish, color, and appearance. Give special attention to ensure that edges, corners, crevices, welds, and exposed fasteners receive a dry film thickness equivalent to that of flat surfaces.
4. Allow sufficient time between successive coats to permit proper drying. Do not recoat surfaces until paint has dried to where it feels firm, and does not deform or feel sticky under moderate thumb pressure, and until application of another coat of paint does not cause undercoat to lift or lose adhesion.

C. Application Procedures: Apply paints and coatings by brush, roller, spray, or other applicators according to manufacturer's written instructions.

1. Brushes: Use brushes best suited for type of material applied. Use brush of appropriate size for surface or item being painted.
2. Rollers: Use rollers of carpet, velvet-back, or high-pile sheep's wool as recommended by manufacturer for material and texture required.
3. Spray Equipment: Use airless spray equipment with orifice size as recommended by manufacturer for material and texture required. Use of spray equipment in Control Wing Basement may be restricted or prohibited. Coordinate with COTR.

D. Minimum Coating Thickness: Apply paint materials no thinner than manufacturer's recommended spreading rate to achieve dry film thickness indicated. Provide total dry film thickness of the entire system as recommended by manufacturer.

E. Prime Coats: Before applying finish coats, apply a prime coat, as recommended by manufacturer, to material that is required to be painted or finished and that has not been prime coated by others. Recoat primed and sealed surfaces where evidence of suction spots or unsealed areas in first coat appears, to ensure a finish coat with no burn-through or other defects due to insufficient sealing.

F. Pigmented (Opaque) Finishes: Completely cover surfaces as necessary to provide a smooth, opaque surface of uniform finish, color, appearance, and coverage. Cloudiness, spotting, holidays, laps, brush marks, runs, sags, ropiness, or other surface imperfections will not be acceptable.

G. Completed Work: Match approved samples for color, texture, and coverage. Remove, refinish, or repaint work not complying with requirements.

3.4 FIELD QUALITY CONTROL

A. The FAA reserves the right to invoke the following test procedure at any time and as often as the FAA deems necessary during the period when paint is being applied:

1. The FAA will engage the services of an independent testing agency to sample the paint material being used. Samples of material delivered to the Project will be taken, identified, sealed, and certified in the presence of the Contractor.
2. The testing agency will perform appropriate tests for the following characteristics as required by the FAA:

a. Quantitative materials analysis

b. Abrasion resistance
c. Apparent reflectivity
d. Flexibility
e. Washability
f. Absorption
g. Accelerated weathering
h. Dry opacity
i. Accelerated yellowness
j. Recoating
k. Skinning
l. Color retention
m. Alkali and mildew resistance

3. If test results show material being used does not comply with specified requirements, the Contractor may be directed to stop painting, remove non-complying paint, pay for testing, repaint surfaces coated with rejected paint, and remove rejected paint from previously painted surfaces if, upon repainting with specified paint, the two coatings are incompatible.

3.5 CLEANING

A. Cleanup: At the end of each workday, remove empty cans, rags, rubbish, and other discarded paint materials from Project site.

1. After completing painting, clean glass and paint-spattered surfaces. Remove spattered paint by washing and scraping without scratching or damaging adjacent finished surfaces.

3.6 PROTECTION

A. Protect work of other trades, whether being painted or not, against damage from painting. Correct damage by cleaning, repairing or replacing, and repainting, as approved by COTR.

B. Provide "Wet Paint" signs to protect newly painted finishes. After completing painting operations, remove temporary protective wrappings provided by others to protect their work.

1. After work of other trades is complete, touch up and restore damaged or defaced painted surfaces. Comply with procedures specified in PDCA P1.

C. Ferrous Metal: Provide the following finish systems over ferrous metal:

1. Latex Satin Paint: Two finish coats over a primer.

a. Primer: Ferrous-metal primer.
b. Finish Coats: Latex Satin.

3.7 EXTERIOR PAINT SCHEDULE

A. Galvanized-Metal Substrates:

1. Latex Satin Paint: Two coats over a primer.
   a. Primer: Direct to Metal product is self-priming.
   b. Finish: Direct to Metal gloss or semi-gloss.

END OF SECTION 09 90 00

APPENDIX

1/A002	**Power Service Building (PSB) West**
2/A002	**PSB South**
3/A002	**PSB East**
4/A002	**PSB North**
5/A002	**DSR Control Wing South**
6/A002	**DSR Control Wing South**
7/A002	**Automation Wing East**
8/A002	**Automation Wing North**
9/A002	**Front- PSB**
10/A002	**Rear- PSB**

1/A003	**Automation Wing West**
2/A003	**DSR Control Wing North**
3/A003	**DSR Control Wing West**
4/A003	**DSR Control Wing South**
5/A003	**DSR Control Wing South 2**
6//A003	**Auxiliary Service Building (ASB)**
7/A003	**ASB West**
8/A003	**ASB West**